

**Fender®**

[www.fender.com](http://www.fender.com)

## **OWNER'S MANUAL FOR GUITARS AND BASSES**

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## Thank You ...

*We are pleased that you have selected one of our fine quality instruments. Fender guitars and basses combine the highest quality components with the finest workmanship and are warranted to give you complete satisfaction. This instrument contains many features and new improvements developed by our engineers.*

*As a result, you are assured of receiving an instrument of superior quality, lasting beauty, and exceptional playability. We urge you to take the time to read this manual and familiarize yourself with the many new features and capabilities of this instrument.*

**PLEASE NOTE:** The accessory kit included with your instrument is a multi purpose kit containing components for several different instrument series. Therefore, you may find one or more superfluous components in this kit that do not have an application for adjusting your specific guitar or bass.

### FEATURES AND SPECIFICATIONS FOR YOUR SPECIFIC INSTRUMENT

For detailed information on the features and specifications of your instrument, visit the Fender website at [www.fender.com](http://www.fender.com). For switching/control function and wiring diagrams for your specific instrument, visit our customer service website at [www.mrgearhead.com](http://www.mrgearhead.com). You may also contact Fender directly for this information either by mail, telephone or e-mail at:

Attn: Consumer Relations Dept.  
Fender Musical Instruments Corp.  
8860 East Chaparral Rd. Suite 100  
Scottsdale, AZ 85250-2618

Phone: 480-596-9690

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This instrument has been constructed with the finest materials and processes available. As part of its final assembly, it has been hand adjusted and setup to the Fender factory specifications which produce the best possible playing action. However, this instrument, like all instruments made from wood, is subject to change as it is exposed to differentials in temperature and humidity brought on naturally by either time, or a change in its physical geographic location.

The playing action of the instrument when you receive it, will depend on several factors, such as:

The amount of time between the final assembly and when the instrument actually ships from Fender.

The amount of time taken during shipping for the instrument to travel from Fender's warehouse to its final destination.

The method of shipping the instrument, i.e. ground, air etc.

The climatic conditions the instrument is exposed to during shipment.

The climatic conditions of the shipping destination.

The amount of time the instrument is in stock at your Fender Dealer, before ultimately being delivered to you.

**DO NOT BE ALARMED IF, WHEN YOU FIRST RECEIVE THE INSTRUMENT, YOU FIND THAT THE PLAYING ACTION IS NO LONGER SET TO FACTORY SPECIFICATIONS. IT IS NATURAL FOR THE SETUP TO CHANGE OVER TIME WHEN EXPOSED TO THE FACTORS DESCRIBED ABOVE.**

Fender electric instruments have numerous points of adjustment that will allow you to compensate for the changes in the playing action that may have occurred between final assembly and when you receive the instrument. If you find the action to be too high or to low for your taste or playing style, please review this manual for details on the setup, adjustment and maintenance that will return the instrument to a optimum playing condition for you.

If you have any doubts in your ability to make these adjustments correctly, take your guitar to an Authorized Fender Service Center for assistance. Please Note: Initial standard setup and adjustment of the instrument and its components at the time of purchase are considered normal Dealer product preparation, and are not covered by the Fender warranty.

## **VOLUME CONTROL**

The Volume Control allows you to control the volume level at the instrument.

## **TONE CONTROLS**

The Tone Control allows you to modify the instrument's tonal characteristics.

### **Standard**

With the tone knob in the full clockwise position, a brighter tone is achieved. Rotating the knob counterclockwise gradually filters off the high frequencies, moving the sound from bright to mellow.

### **TBX**

Some instruments have a unique tone circuit that features a TBX Tone Control (Patented). The TBX (which stands for Treble Bass Expander), is a dual concentric stacked tone pot. The pot has a detent in the middle position. From 0 to 5 (at the detent), the TBX functions like a normal tone circuit with filtration through a capacitor. Advancing the knob counterclockwise from the detent position gradually filters off high frequencies, like a standard tone control (see "Standard Tone Controls" above). Rotate the knob clockwise from the detent position, and you add presence and brightness by allowing the pickups' natural resonance to come through.

### **DELTA-TONE**

Some Fender guitars have a unique tone circuit that features a "Delta Tone" Control. The "Delta Tone" system consists of a high output bridge pickup and special "no-load" tone control for the middle and bridge pickups. This new pot has a detent at the 10 position which bypasses completely any filtration through capacitors. Unlike the TBX, which had a detent at the 5 position and gradually reduced the amount of filtration through the capacitor, the Delta-Tone's "no-load" feature eliminates filtration completely at the detent and the result is more of the direct presence of the pickup.

## **ACTIVE ELECTRONICS**

Some Fender instruments feature active electronics, which are powered by a 9- volt battery. The battery is accessed via a plate in the back of the guitar. More extensive descriptions of the circuit on your instrument (if it has an active electronic circuit) may be found in the manual addendum for your particular instrument included with this manual.

### **Treble Boost/Cut**

The Treble Boost/Cut control allows you to increase or decrease the treble frequency output of the instrument. The knob has a center detent, at which point the natural tone of the instrument is unaffected. By turning the appropriate knob clockwise from the center, you gradually boost the treble frequencies in volume. By turning the knob counterclockwise from the center, you gradually cut the treble frequencies in volume.

### **Midrange Boost/Cut**

The Midrange Boost/Cut control allows you to increase or decrease the midrange frequency output of the instrument. The knob has a center detent, at which point the natural tone of the instrument is unaffected. By turning the appropriate knob clockwise from the center, you gradually boost the midrange frequencies in volume. By turning knob counterclockwise from the center, you gradually cut the midrange frequencies in volume.

### **Bass Boost/Cut**

The Bass Boost/Cut control allows you to increase or decrease the bass frequency output of the instrument. The knob has a center detent, at which point the natural tone of the instrument is unaffected. By turning the appropriate knob clockwise from the center, you gradually boost the bass frequencies in volume. By turning knob counterclockwise from the center, you gradually cut the bass frequencies in volume.

**Note:** When using Boost/ Cut controls, it is suggested that you start with the knob in the center (at the detent) and gradually add or boost frequencies from there.

### **Midrange Boost**

Some guitars feature an active Midrange Boost Control. The Midrange Boost Control allows you to increase the midrange response of the guitar. By turning the knob clockwise, you gradually boost the midrange and bass frequencies as you decrease the treble frequencies. You can actually shape the sound of the pickups.

## **SWITCHES**

### **Pickup Selector**

The pickup selector switch does just what it implies, it selects the pickups either alone or in combination. Dual pickup models are supplied with a three position switch, while the three pickup models are equipped with a five position switch.

**Note:** Some reissue models are equipped with a three position switch.

### **Coil Splitter**

Some models with humbucking pickups also feature mini-toggle switches which allow you to select between single coil and dual coil (humbucking) modes.

### **Series/Parallel**

A Series/Parallel Switch changes the wiring of the pickups to produce sound variations. The "Up" position puts your pickups in a Parallel configuration, giving clear, bell-like tones. "Down" position puts your pickups in a Series configuration, which produces a hotter output signal with a lot more bottom end.

## **NON TREMOLO BRIDGES**

### **American Series**

The American Standard bridge saddles are made from stainless steel, due to its superior durability and resistance to corrosion. They are weight balanced to provide optimum sound transfer. The saddles are individually adjustable for both string height and intonation.

### **Standard**

The bridge saddles are made from stamped steel that has been case-hardened and heavily chromed for superior durability. The saddles are individually adjustable for both string height and intonation.

### **Vintage Hard-tail Strat**

The bridge saddles are made from stamped steel that has been case-hardened and nickel-plated for superior durability.

The saddles are individually adjustable for both string height and intonation.

### **Vintage Telecaster**

Just like the original '52 Telecaster bridge after which this unit is fashioned, it features brass saddles and a nickel-plated chrome chassis. There are only three saddles; two strings per saddle. The saddles are each adjustable for height and intonation.

## **TREMOLO SYSTEMS**

All systems are adjustable for tremolo travel by adjusting the spring to string balance.

**Note:** If changing gauge of strings from those provided from the factory, dramatic change will occur in your tremolo action and will need to be compensated for.

### **American Series**

The American Series tremolo is a floating, fulcrum style tremolo, with two large pivot posts. These pivot posts are "V" grooved and are mated to the knife edge slots that are cut into the bridge bass plate. The thicker bass plate and steel spring block, coupled with the weight-balanced, stainless steel bridge saddles, help to deliver increased sustain and an extremely well balanced tonal response throughout the instrument's frequency range.

The tremolo arm is installed by carefully threading it into the hole adjacent to the first string. Do not over-tighten as you may snap the arm off in the block. Fender recommends that you remove the tremolo arm when storing the instrument. You will need to place a small piece of tape over the armhole to insure that the spring remains in the receptacle hole and is not lost.

### Deluxe American Series

The Deluxe American Series tremolo is a floating, fulcrum style tremolo, with two large pivot posts. These pivot posts are "V" grooved and are mated to the knife edge slots that are cut into the bridge bass plate.

The thicker bass plate and steel spring block, coupled with the weight balanced, chrome plated stainless steel bridge saddles, help to deliver increased sustain and an extremely well balanced tonal response throughout the instrument's frequency range.

This tremolo unit features a convenient "snap in" tremolo arm. In addition, the string rest in the saddles has been designed using a softer curve, which helps to prevent string breakage at the bridge.

### Fender Deluxe Locking Tremolo

The Fender Deluxe Locking tremolo system is a fusion of locking and non-locking systems. It is the best of both systems.

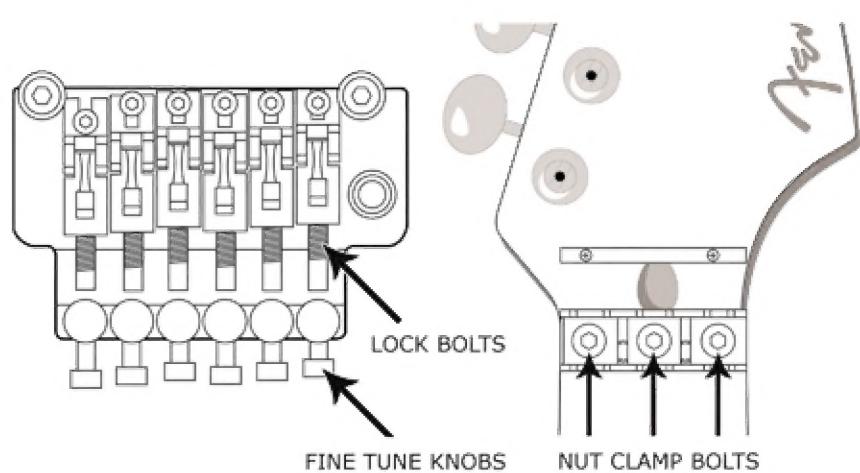
The Fender Deluxe Locking system makes use of a locking bridge, locking tuners, and the Fender L.S.R. roller nut. This system retains normal tuning at the headstock, like a non-locking system, and has similar tension due to the free length of string between the nut and the tuners. The tonality is also very similar to a non-locking system like the American Standard system on older Strat models. This unit will also drop into any American Series Strat models with no modifications to the body. This tremolo unit features a convenient "snap-in" tremolo arm.

### Floyd Rose® Original, Floyd Rose® II Tremolo

The Floyd Rose Original, and Floyd Rose II are intonation and height adjustable fulcrum style bridges. Additional features include hardened knife-edge pivots, torque adjustable lock in/lock out arms, precision-engineered locking saddles, and 3-section nut lock.

### String Loading for Floyd Rose® Tremolo Systems

Prior to stringing your guitar, set the fine tuners on the bridge to the mid-way point. This will allow sufficient tuning range both up and down in pitch. Starting with the low E string, loosen the Nut Clamp Bolt at the headstock with the 3mm Allen wrench and remove old string. When using ball end strings, cut off the ball end of the new strings before installing. With the 3mm wrench, turn the Lock Bolt counterclockwise three turns. Insert cut end of string to bridge saddle, slide the string in so that it hits the bottom base of the saddle. Using the Allen wrench, tighten snugly. Take care not to over-tighten as this may cause thread stripping or cracking of the block or saddle. Thread the string through the loosened Nut Clamp Tab Bolt at the headstock, and run the string to the machine head then cut string two machine heads past the low E tuner to allow for slack and wind string to appropriate tuner. Follow these same steps for each remaining string. In order to preserve the balance of your tremolo, change only one string at a time. Once all the strings have been replaced, stretch them by pulling the string the full length of the fretboard. Retune and repeat until the strings remain in tune even after stretching. This should insure proper stretching and eliminate tuning problems associated with new strings. Finally, loosen the nut, tune to pitch with the fine tuning knobs on the bridge, and retighten the nut snugly, taking care not to over-tighten, as damage may occur.



### Vintage Synchronized Tremolo

This is a floating, fulcrum style tremolo, which utilizes six screws as pivot posts. The bridge saddles are made from stamped steel that has been casehardened and heavily chromed for superior durability. They are weight balanced to provide optimum sound transfer. These, coupled with the thick bass plate and steel spring block, help to deliver increased sustain and an extremely well balanced tonal response throughout the instrument's frequency range. The saddles are individually adjustable for both string height and intonation.

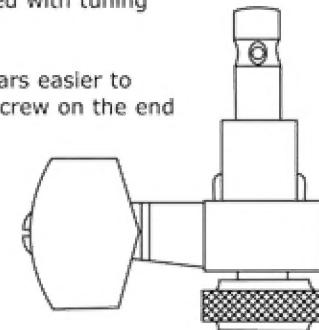
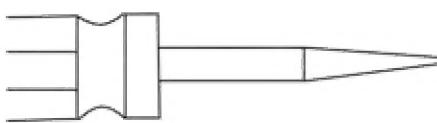
The tremolo arm is installed by carefully threading it into the hole adjacent to the first string. Do not over tighten, as you may snap the arm off in the block. Fender recommends that you remove the tremolo arm when storing the instrument. You will need to place a small piece of tape over the receptacle hole to insure that the spring remains in the hole and is not lost.

## TUNING GEARS

### Adjustable

Some Fender guitars and basses are equipped with tuning gears on which you can adjust the tension.

To loosen the tension (making the tuning gears easier to turn), simply use a screwdriver to turn the screw on the end of the tuning button counterclockwise.

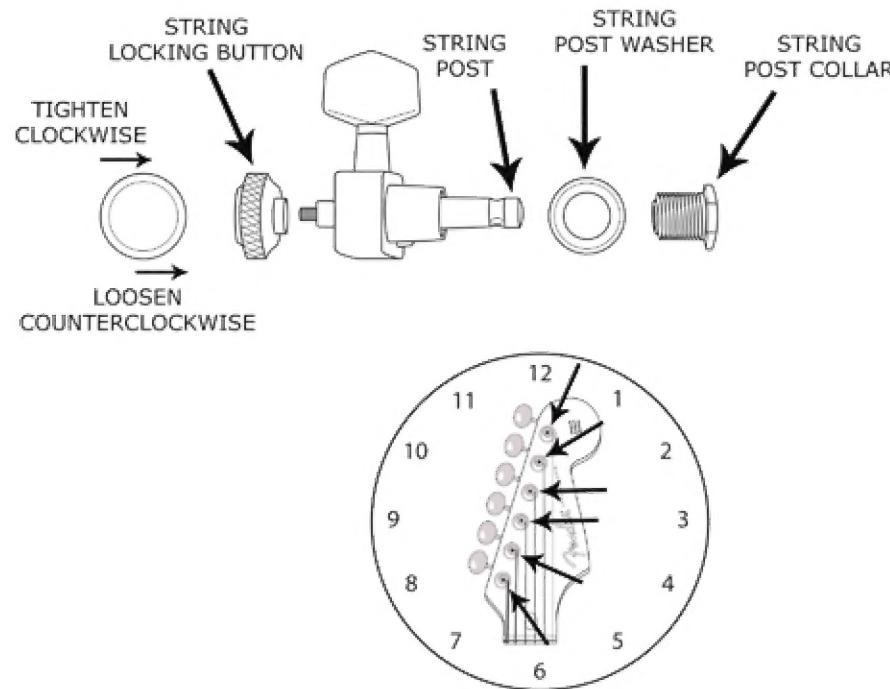


Turn the same screw clockwise to tighten the tension on the tuning gear (making it more difficult to turn).

**Caution:** Too little tension on the tuning gears causes the strings to slip out of tune. Fender recommends a firm (not over tightened) tension on the tuning gears.

#### Locking

Several guitars are equipped with Fender/Schaller locking keys that also feature "zero" string backlash. These unique keys provide a positive string lock to the post (with minimal string wrap) that keeps the guitar in tune during tremolo use.



#### Threading Locking Keys

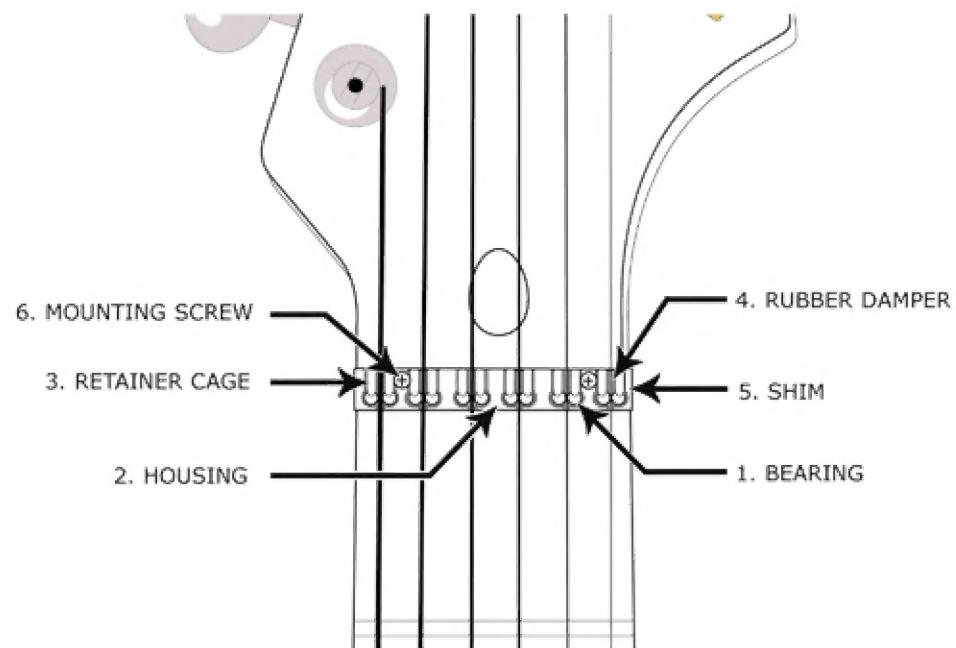
Thread the strings into the eyelet of the tuning key in this manner; starting with the sixth string, thread the string through the eyelet at the five o'clock position. The fifth at four o'clock, the fourth and third at three o'clock, the second at two o'clock, and finally the first at one o'clock. Pull each string through tautly and tune to pitch.

**Caution:** Because of the positive locking action of the locking keys, when changing strings, tension should first be relieved by turning (loosening) the key; no tension should be applied to the strings.

## FENDER "LSR" NUT

Some guitars feature the Fender/LSR roller nut, which is the most advanced low-friction guitar nut available. Each string is supported by a pair of hardened chrome steel ball bearings (1) that provide nearly friction free operation. The ball bearings are supported in a stainless steel housing (2) that is durable and resistant to corrosion. A stainless steel retainer cage (3) surrounds the ball bearings to keep them in place whenever the strings are removed. Rubber dampers (4), behind the bearings, dampen any unwanted string vibrations beyond the nut. Along the front edge of the frame are individual string guides. These guides control string movement during extreme bending to prevent the string from popping out from between the bearings. The guides also accommodate a variety of gauges for each string without adjustment or modification to the nut. With a small amount of care, the Fender/LSR roller nut will provide excellent performance.

Be careful not to bend the retainers (fingers) that keep the ball bearings in place. These tabs keep the ball bearings from falling out whenever there are no strings to keep them in place (i.e. when changing strings or when a string breaks).



If the retainers are bent or damaged the bearings can fall out and become lost. These tabs are recessed and are not exposed to most hazards, but extreme care should be taken when wiping the neck with a soft cloth or when removing the instrument from the case/gig-bag.

The surface of the ball bearing is extremely durable. The only maintenance required is to keep the roller nut somewhat clean and dry. Occasionally blowing dirt out of the nut with compressed air is a good way of doing this. An occasional drop of oil is permissible, but use it sparingly.

The height of the roller nut is adjustable by inserting shims (5). The playing height of the nut is set at the Fender factory during final assembly. This is the recommended setup, but if a different playing height is desired, additional shims may be added or removed. Shims are available in .005" and .010" thicknesses from Fender accessories. To insert shims loosen both mounting screws (6) using a #0 screwdriver only, and slide the shim under the roller nut. Retighten the screws snugly.

If you have any doubts about your ability to perform any of these procedures, take your guitar to an Authorized Fender Dealer or Service Center.

## ADJUSTABLE PICKUPS

Pickups on Fender guitars and basses can be adjusted for height. The procedure for adjusting the height is covered in a later section in this manual, Set Pickup Height.

## TRUSS ROD

Each Fender guitar and bass is carefully adjusted at the factory. The truss rod and string height are set for optimum action and playability with medium gauge strings.

Under normal tension, the neck should have a slight concave curvature. By creating a counteracting force, the truss rod prevents the neck from bending excessively under the stress placed on it by the strings.

### Standard Truss Rod

The standard truss rod can counteract a neck that is too concave, by compensating for excessive string tension.

### Bi-Flex Truss Rod

Some Fender guitars and basses have a unique Bi-Flex truss rod system. Unlike standard truss rods, which can only correct a neck that is too concave (under-bow), the Bi-Flex truss can pull the neck in either direction.

## BATTERY

Batteries on guitars or basses with active electronics are accessed via a screw-plate on the top or back of the body. Batteries only become active when the instrument has a cord plugged into the jack. For the longest possible battery life, always unplug your instrument when it is not in use.

## TRUSS ROD, ACTION, AND INTONATION ADJUSTMENTS

Because of travel effects, changes in string gauges, climatic conditions, and differences in playing styles, you might need to adjust your Fender guitar or bass. If it becomes necessary, the following procedure outlines the standards set at the factory.

**Caution:** It is important to avoid sudden changes in temperature, since this causes the wood to expand at a different rate than the finish, which may result in checking. While this condition does not affect the tone, it does affect the appearance.

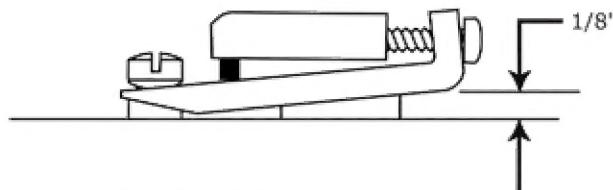
Let the instrument warm up in its own case. Then, open the case slowly, allowing warm air to enter gradually. After the instrument is removed, leave the case open so it too can warm up thoroughly. String tension on most solid body electric guitars and basses should be left tuned to pitch during shipping.

Dirty, corroded or worn strings cause loss of sustain, loss of treble frequencies, and faulty intonation. Fresh strings add to the enjoyment and tonal qualities of your guitar. Change them often, using Fender strings. If your guitar needs repair work, refer all such work to your Authorized Fender Service Center.

To make adjustments to your instrument you will need-in addition to the tools that are included with your instrument-the following equipment:

1. A set of automotive feeler gauges (.002 through .025)
2. A six inch ruler (measuring in 1/32" and 1/64" increments)
3. A small Phillips screwdriver
4. A small flat head screwdriver
5. An electric guitar capo (The Jim Dunlop capo is recommended)
6. An electric tuner (a tuning fork or pitch pipe may be substituted if a tuner is not available.)
7. A light machine oil (3 in 1 or sewing machine oil)

**Note:** For tremolo equipped guitars, remove the tremolo back cover. Tune your guitar to pitch. (It is important to note that the tension of the strings plays a key role in the set-up of your guitar. If you play tuned to pitch other than A440, make sure you keep your guitar tuned to that pitch throughout the set-up procedures. **Check and maintain your tuning after each step.**)



#### For Guitars Equipped with Tremolo:

Adjust the bridge angle, using the two claw screws in the back cavity of the guitar, to the desired angle. (Fender recommends approximately 1/8" of gap at the rear of the bridge. The bridge may be adjusted, however, to accommodate your playing needs.) If you prefer to set the bridge flush with the body, **do not over-tighten the two claw screws**. Set the tension of the springs to equal the tension of the strings, while the bridge is resting on the body.

**Note:** If you have the new Fender Deluxe Locking Tremolo, read the portion of the manual that covers the adjustment procedures on this revolutionary new bridge. If not, proceed.

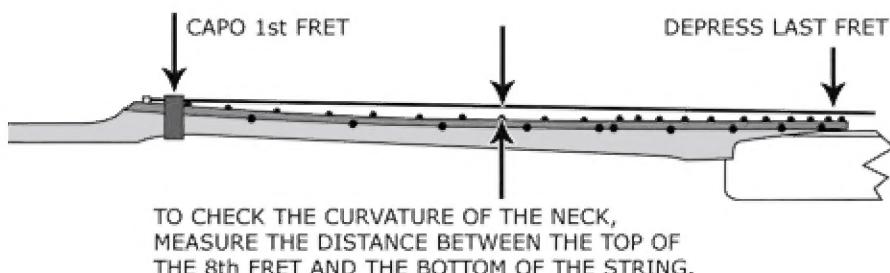
#### Adjust Neck Curvature (Truss Rod)

Each Fender guitar is carefully adjusted at the factory. The truss rod and string heights are set for optimum action and playability with the gauge strings supplied.

Under normal tension, the neck should have a slightly concave curvature. Creating a counteracting force, the truss rod prevents the neck from bending excessively under the stress placed on it by the strings. The tension on the rod is adjustable so the correct curvature can be achieved by regulating the neck's resistance to string tension.

To check the truss rod setting for a guitar, tune the guitar to playing pitch. Install a capo at the first fret, depress the 6th string at the last fret. Using a feeler gauge, check the gap between the bottom of the 6th string and the top of the 8th fret. The string clearance should be approximately .010".

To check the truss rod setting for a bass, tune the bass to playing pitch. Install a capo at the first fret, depress the 4th string at the last fret. Using a feeler gauge, check the gap between the bottom of the 4th string and the top of the 8th fret. The string clearance should be approximately .015".



#### Standard Truss Rod

The standard truss rod can counteract a neck that is too concave, by compensating for excessive string tension. If an adjustment is necessary, either: 1) insert the appropriate Allen socket wrench into the truss rod adjustment hole at the headstock of the guitar; or 2) insert a Phillips screwdriver into the truss rod adjustment hole where the neck joins the body. Rotate [the screwdriver/wrench] gently until you feel it engage.

If the neck is too concave, turn the Truss Rod Nut clockwise. If it is too straight or convex, turn the Truss Rod Nut counterclockwise. Periodically, check the gap with the feeler gauge, and check the tuning.

**Caution:** DO NOT continue adjusting: 1) If extreme resistance is felt while adjusting in either direction, or 2) If the neck has a convex bow that remains when the truss rod nut is loosened. Take the instrument to the nearest Authorized Fender Dealer or Service Center for inspection.

**Note:** The Truss Rod Nut should not be left loose, but should be tightened by at least a quarter turn.

#### Bi-Flex Truss Rod

Some Fender guitars and basses have a unique Bi-Flex truss rod system. Unlike standard truss rods, which can only correct a neck that is too concave (underbow), the Bi-Flex truss can pull the neck in either direction. If an adjustment is necessary, insert the appropriate Allen hex wrench into the truss rod adjustment hole at the headstock of the guitar. Rotate the wrench gently until you feel it engage.

If the neck is too concave, turn the Truss Rod Nut clockwise. If it is too straight or convex, turn the Truss Rod Nut counterclockwise. When you come to the "center" point of the Truss Rod adjustment, the Truss Rod will feel slack. Keep turning past that point to adjust the Truss Rod in the opposite direction.

Periodically, check the gap with the feeler gauge and check the tuning for standard pitch.

**Caution:** DO NOT continue adjusting if extreme resistance is felt while adjusting in either direction. Take the instrument to the nearest Authorized Fender Dealer or Service Center for inspection.

**Note:** The Truss Rod Nut should not be left loose in the "center point", but should be tightened by at least a quarter turn.

### Set Bridge Height

Check your string height, using the six-inch ruler, and make the necessary adjustments. The recommended string clearance at the 17th fret (measured by the distance between the bottom of the string and the top of the fret) is:

**Guitar:** Strings 1 - 4: 5/64" (2mm) +/- 1/64" (.4mm) Strings 5 - 6: 3/32" (2.4mm) +/- 1/64" (.4mm)

**Bass:** Strings 1 - 4: 5/32" (2mm) +/- 1/64" (.4mm)

These specifications are the factory recommended settings only. The optimum height adjustment varies from player to player due to differences in technique, playing styles, string gauges, etc.

TO CHECK THE STRING HEIGHT, MEASURE THE DISTANCE BETWEEN THE TOP OF THE 17th FRET AND THE BOTTOM OF THE STRINGS.



### American Series

Each saddle is individually adjusted by using the .050" Allen wrench to turn the two Allen screws located on the top of the saddle. Clockwise raises and counterclockwise lowers. Be sure both height adjustment screws of each bridge saddle rest firmly against the bridge plate. Also be sure each saddle is parallel to the bridge plate after adjustment.

### Floyd Rose® Original, Floyd Rose® II, Fender Deluxe Locking

On these tremolo units, the overall height of the bridge is set by adjusting the Pivot Posts located on either side of the bridge. To raise the bridge height, simply adjust each Pivot Post by inserting the Allen wrench (or slot head screwdriver, depending on the model) into the Pivot Post and rotating it counterclockwise to the desired height.

To lower the bridge height, simply rotate each Pivot Post clockwise until the desired bridge height is reached. Remember to check for neck bow while adjusting bridge height as neck bow can effect string height. For best playability, try to keep the Pivot Posts adjusted evenly.

Individual string height is not offered on these tremolo systems as it can negatively effect the overall tuning stability of the tremolo system.

### Vintage

Each saddle is individually adjusted by using the two Allen screws located on the top of the saddle (vintage Telecasters and vintage Basses have flathead screws instead of Allen screws). Clockwise raises and counter-clockwise lowers. Be sure both height adjustment screws of each bridge saddle rest firmly against the bridge plate. Also be sure each saddle is parallel to the bridge plate after adjustment.

### Set Pickup Height

The pickups/Sensors on your Fender guitar or bass are fully adjustable for height. Adjustments are made by turning the Height Adjustment Screws located at each end of the pickups/Sensors. (On humbucking pickups, the center screw on either side of the pickup is the Height Adjustment Screw.) Depress all strings at the last fret. Check the distance from the bottom of the 1st and 6th strings to the top of the pole piece or pickup /Sensor cover. The measurement should be as follows:

## Electric Guitar

	Bass Side	Treble Side
Noiseless	8/64"	6/64"
Texas Specials	8/64"	6/64"
Vintage Style	6/64"	5/64"
American /Mexican Std	5/64"	4/64"
Humbucking	4/64"	3/64"
Lace Sensors	As close as desired (allowing for string vibration)	

## Bass

	Bass Side	Treble Side
Noiseless	8/64"	6/64"
Vintage Style	8/64"	6/64"
American/Mexican Std.	6/64"	5/64"
Lace Sensors	As close as desired (allowing for string vibration)	

Pickups are adjusted in the following manner: to raise the pickup, turn the adjustment screws clockwise; to lower it, turn the screws counterclockwise.

**Note:** Pickups set too close to the strings can cause false tones and loss of sustain due to excess magnetic pull on the strings. Sensors, however, can be set as close to the strings as desired (allowing for string vibration.)

#### Check for Fret Rattles

With the instrument plugged into your amplifier and the pickup selector switch set to the neck pickup position, pick in the area between the neck and bridge pickups. Play each fret position, holding the pick parallel to the plane of the body, to determine that the strings do not buzz or rattle against successively higher frets.

Bend the first and second strings up one whole tone in pitch at the 12th, 15th and 17th frets. The notes should ring true, without choking off.

Due to differences in playing styles and picking techniques, action settings that produce no string rattle for one player may rattle when another player plays the instrument. If you have followed all the adjustment procedures listed and set the string action at the recommended setting, but are still experiencing fret rattle, you may require slightly higher than normal settings to accommodate your style of playing. If you still experience difficulties, take the guitar to an Authorized Fender Service Center.

#### Intonation

The quality of strings affects intonation as does the gauge of strings. If changing from the factory equipped gauge, insure that all of the previous steps have been followed before adjusting intonation.

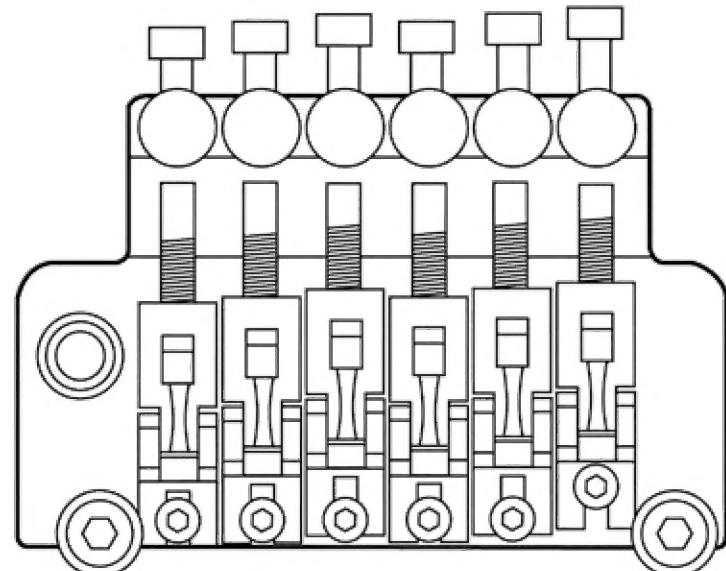
For optimum results, these adjustments should be made when the strings are in new condition. With the pickup selector switch set to the neck pickup position and the tone and volume controls at the maximum settings, tune the guitar. Check the intonation of each string with an electronic tuner by playing the open string harmonic at the 12th fret and comparing this note with the note produced by fretting the string at the 12th fret. The pitch should be the same + or - 1 cent (1 /100th of a semitone). If the fretted note is sharp, the string must be lengthened by moving the saddle back; if the fretted note is flat, the string must be shortened by moving the saddle forward. After each adjustment, retune and repeat this test until both notes produce the same pitch. The procedures for doing this are as follows:

Turn the Phillips head intonation screw, at the end of the bridge, clockwise to lengthen the string and counterclockwise to shorten it, depending on whether the string is sharp or flat in relation to the 12th fret harmonic. Retune and retest each adjustment.

**Note:** A small adjustment in the position of the bridge saddle makes a noticeable difference in the string, so move the bridge saddles in small increments.

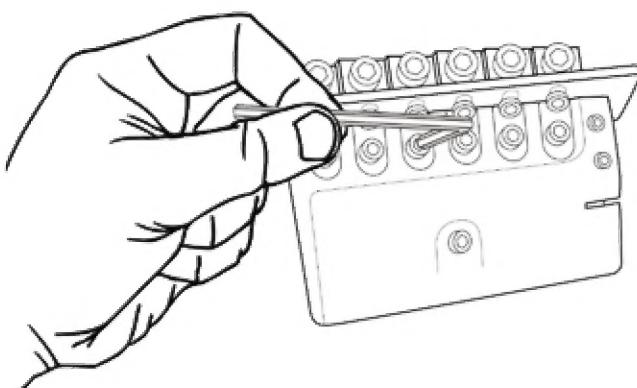
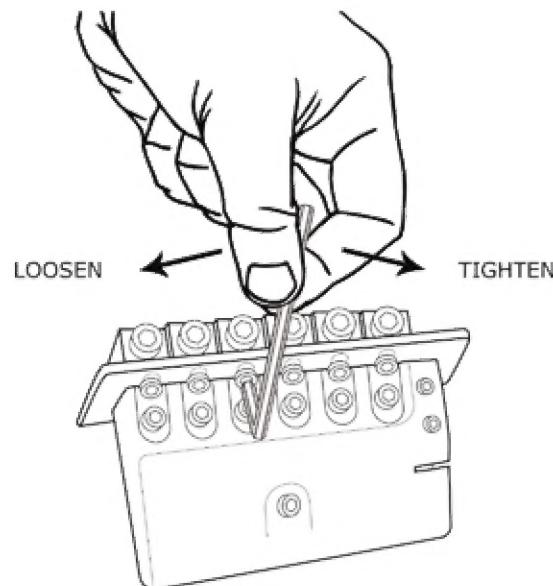
#### Floyd Rose® Original, Floyd Rose® II Tremolo

Loosen the Intonation Block Hold-down Bolt by turning it counterclockwise with a 2.5mm Allen wrench. Push the tremolo arm down toward the body to loosen string tension. Slide the Bridge Saddle in the desired direction (it may be necessary to de-tune string completely if saddle has to be slid toward bottom end of the guitar). Release the tremolo arm. Tighten the Intonation Block Hold-down Bolt. Retune and retest each adjustment.



### Fender Deluxe Locking Tremolo System

The intonation is adjusted underneath the bridge. To access the adjusting bolts, dive the tremolo with the trem arm. There are six bolts holding the saddles to the bridge plate. These are loosened with a special hex wrench, included with the tremolo. The short end of this fits the saddle locking bolt. This is easier if you turn the guitar upside down on your lap. You can hold the trem arm down with your left hand, and look at the bolt heads as you insert the wrench. Loosen the bolt only about 1/4 turn; enough that you can slide the saddle easily, but not more than necessary. You may now turn the larger bolt, that is threaded into the tremolo block, in or out. This moves the whole saddle, by pulling on the saddle locking bolt head. When the saddle is intonated properly, you need to re-lock the saddle to the plate. Use moderate force to tighten the bolt. Do not over-tighten! As the saddle is already held in place, it takes only a small amount of pressure to fully lock the saddle down.



#### Note:

1. There are two 3/32" hex wrenches. The short arm is for the saddle locking bolt. The longer arm wrench works better to move the saddles back and forth, because you can get more torque.
2. If you move the first bridge saddle away from the nut too far, the string may break as you release the trem arm. Move it only a small amount at a time.
3. As you intonate the guitar, the pitch changes and you must constantly retune. Be aware that as you lock the saddle down, the pitch will go slightly sharp, depending on how loose the saddle locking bolt is. Some trial and error is required here.
4. If you forget your wrenches, you won't be able to adjust your intonation, in relation to the 12th fret harmonic. Retune and retest after each adjustment.

#### Vintage

Adjust the Phillips screw at the end of the bridge clockwise to lengthen the string and counterclockwise to shorten, depending on whether the string is sharp or flat in relation to the 12th fret harmonic. Retune and retest after each adjustment.

#### Vintage Telecaster

Adjust the flathead screw at the end of the bridge clockwise to lengthen the string and counterclockwise to shorten, depending on whether the string is sharp or flat in relation to the 12th fret harmonic. Retune and retest after each adjustment. Since this bridge has two strings sharing one saddle, it is necessary to set the intonation so that an average between the two strings is achieved.

## CARE OF YOUR GUITAR OR BASS

Your new Fender guitar or bass is precision made to give you many years of satisfaction. A few simple maintenance procedures will help you keep your instrument playing like new.

After you have finished playing, thoroughly wipe the entire guitar, including the strings, with a clean, soft cloth. Regular cleaning with Fender Polish is recommended.

Avoid exposing the guitar to any chemical or substance that might mar the finish, or to direct sunlight or other sources of excessive heat humidity or shock.

## FENDER® ELECTRIC INSTRUMENT LIMITED LIFETIME WARRANTY

Fender Musical Instruments Corporation warrants this Fender brand instrument to be free from defects in materials and workmanship for as long as it is owned by the original retail purchaser, except that pickups, switches, jacks, controls, all other electronic components, tuning machines, hardware, pickguards, plated surfaces, gig bags, cases and case hardware are warranted for a period of one (1) year from the date of original purchase. This warranty applies only to the original retail purchaser when this instrument is purchased from an Authorized Fender Dealer and is subject to the limitations set forth herein. **IMPORTANT: PLEASE RETAIN YOUR ORIGINAL SALES RECEIPT, AS IT IS YOUR PROOF OF PURCHASE VALIDATING THIS LIMITED WARRANTY.**

Fender has established a network of independent Authorized Fender Service Centers for warranty service. The Fender Dealer from whom you purchased your instrument may also be authorized for warranty service and should be the first point of contact when service of any kind is required for your Fender instrument. To receive warranty service, return the complete instrument to an Authorized Fender Service Center, with your sales receipt as proof of purchase, during the applicable warranty period. Defective components that qualify for coverage under this warranty will be repaired or replaced (at Fender's discretion) without charge. Remedies beyond normal service repair of any Fender instrument require both an evaluation and confirmation of the defect and a direct recommendation to Fender from an Authorized Fender Service Center for alternative considerations.

All transportation, insurance and freight charges associated with warranty service and repairs on Fender instruments are the responsibility of the purchaser, as is any service initiated for the purpose of customizing setups or adjustments beyond factory specifications. Initial standard setup and adjustment of the instrument and its components at the time of purchase are considered normal Dealer product preparation, and are not covered by this warranty.

### **Limitations and exclusions**

The following items are *not* covered by this warranty.

1. Fret wear, saddle wear, nut wear, strings and batteries.
2. Setups, adjustments or routine maintenance of any kind.
3. Damage to finishes or cracks, splitting, or warpage of wood due to changes in temperature or humidity, exposure to or contact with sun, fire, moisture, body salts and acids of perspiration, guitar straps, guitar stands/hangers made from vinyl, plastic, rubber or other synthetic materials, any other chemicals or non-Fender-approved polishes.
4. Damage, corrosion or rusting of any hardware components caused by humidity, salty air, or exposure to the moisture, body salts and acids of perspiration.
5. Any damage to an instrument resulting from customization or modification.

6. Normal wear and tear on any part of the instrument, case or gig bag including jacks, controls, switches, plated surfaces, tuning machines, pickguards, zippers, clasps, handles, latches, case hardware etc.
7. All other damage and deterioration due to normal usage, wear and tear, aging, accidents, neglect, abuse, or Acts of Nature.
8. Any instrument, whose serial number is missing, altered or tampered with in any fashion.
9. Any instrument purchased from anyone other than an Authorized Fender® Dealer.
10. Instruments that have been serviced by unauthorized persons (any person other than a Fender Certified Technician at an Authorized Fender Service Center).

THE FOREGOING CONSTITUTES THE ONLY WARRANTY MADE BY FENDER WITH RESPECT TO THE PRODUCTS AND IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. Any implied warranties, including without limitation, any implied warranties of merchantability or fitness for any particular purpose, imposed under state law are limited to the duration of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not be applicable to you.

FMIC ASSUMES NO LIABILITY FOR PROPERTY DAMAGE RESULTING FROM FAILURE OF THIS PRODUCT NOR ANY LOSS OF INCOME, SATISFACTION, OR DAMAGES ARISING FROM THE LOSS OF USE OF SAME DUE TO DEFECTS OR AVAILABILITY OF SAME DURING SERVICE.

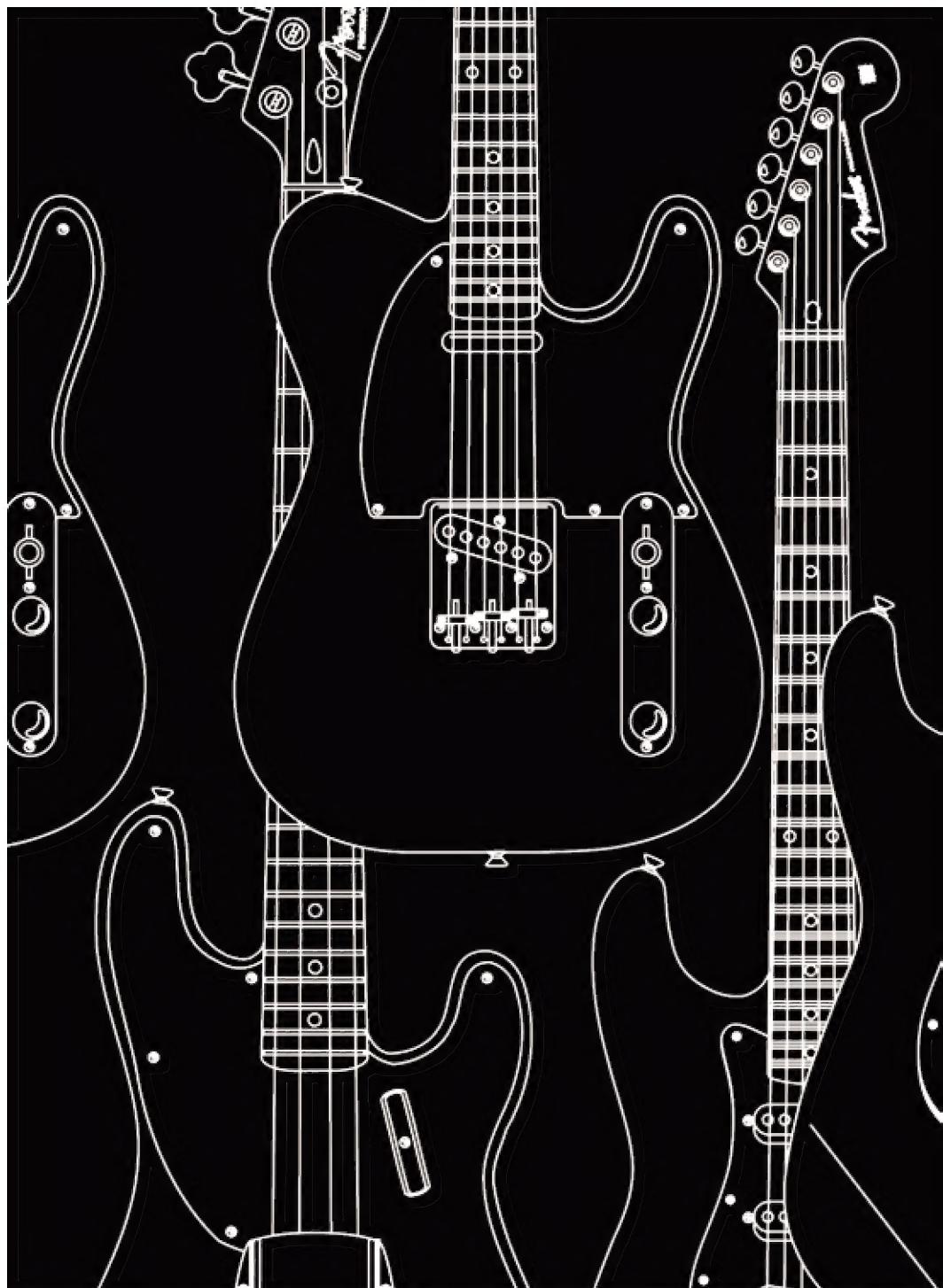
\* This warranty applies only to Fender instruments manufactured after January 1, 1998 and purchased and serviced within the U.S.A. and Canada. Warranties outside these countries are as defined by the authorized Fender Distributor for your country or region, and may vary from the above in terms and/or length.

EFFECTIVE DATE: JANUARY 1, 1998

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